

A NEW SPECIES OF XENOCALIGONELLID MITE FROM
THE GALÁPAGOS ISLANDS (ACARI)

Roberto H. González

Abstract.—A new family of prostigmatid mites, the Xenocaligonellidae is erected to include the bizarre genus *Xenocaligonellus* De Leon 1959, which was formerly placed under the Caligonellidae. A new species, *X. galapagus*, is described from the Galápagos Islands off the coast of Ecuador.

De Leon (1959) erected the genus *Xenocaligonellidus* for *X. ovaerialis*, a bizarre species from southern Florida and western Mexico. A major caligonellid character, namely the peritremata entering the stylophore, was taken into consideration for placing this genus in the family Caligonellidae Grandjean, as defined by Summers and Schlinger (1955). However, De Leon, recognizing other major characters which deviate from the family characteristics, created the subfamily Xenocaligonellinae to account for these non true caligonellid characters.

As *Xenocaligonellidus* shares only one major character with the true caligonellids whilst having a number of clear cut differences, a new family status is proposed for these odd looking mites. Reasons supporting this action are ample, viz: *Xenocaligonellidus* lacks an important raphignathoid character—the palptibial claw. In addition, non caligonellid characters include: Coxae contiguous, not separated in groups I–II and III–IV; anal slit distinctly ventral and contiguous with the genital opening; and empodium with a double row of multiple capitate hairs. The general body shape and the outstanding development of most of the dorsal setae are further characters which make it possible to define a new family, the Xenocaligonellidae.

From a phenotypic standpoint, xenocaligonellid mites are remarkably different than all known species in the families of Raphignathoidea. The arrangement and quality of dorsal setation, the absence of the paraaxial claw on palptibiae, the lack of transverse fissures on dorsal idiosoma, and the tetranychid kind of empodial arrangement make those mites to be an extremely marginal raphignathoid group. The placement of the new family under this group has reluctantly been made as there is no other superfamily providing for such assorted combination of distinct characters. On the other hand, the distinctly looped peritrematal arrangement would suggest that this family is an offshoot of the Caligonellidae.

Xenocaligonellidae, new family status

Small, flattened mites, with cheliceral bases fused into a stylophore bearing a chambered, loop-shaped peritremata. Gnathosoma exposed from

above. Palpi 5-joined, tibia lacking distal claw, palptarsus longer than tibia, with a set of stubby distal setae. One pair of flagellate ventral setae on subcapitulum. Dorsal setae on idiosoma whiplike, some of them longer than body; other setae acicular, distally spinose. Eyes, two pairs. Coxae II-III contiguous. Anal slit and genital opening contiguous on the ventral side. Legs short, robust with a blade shaped empodia bearing two rows of multiple capitate hairs.

As De Leon stated for *X. ovaerialis*, males and nymphs resemble the female except for the reduction in dorsal setae numbers. Larvae have fewer pairs of dorsal setae, and the caudalmost pair of anal setae are much longer than other dorsals.

The habits of this family are known for *X. ovaerialis* only. De Leon reported this species to occur on *Quercus*, *Persea*, *Celtis*, *Inga* and several unidentified plants. An interesting characteristic of *Xenocaligonellidus* is the egg-laying habit. They are attached to the distal end of an erect stalk, a feature known in insects apparently to avoid egg predation. With the finding of a second species from the neotropical region, the generic characteristics have been better understood and amended accordingly.

Xenocaligonellidus De Leon 1959, emend.

Description.—Idiosoma circular, flattened, with smooth integument; stylophore broadly triangular, fused along the midline except at the distal $\frac{1}{2}$; peritremata Ω -shaped, without a distinct distal opening. Movable digits styletlike. Fixed digits finely pointed. No terminal claw on palptibia. Palptarsus longer than palptibia with a crown of stubby, straight setae. Two pairs of eyes. One single pair of ventral subcapitular setae. Fifteen pairs of dorsal setae distributed as follows: 5 pairs of propodosomal setae; 10 pairs of hysterosomals. Coxae contiguous, longer than respective femora, without coxal plates. Legs short, with genua and tibia of about equal size. Ambulacra with strong claws and a bladelike empodia bearing 2 rows of multiple, capitate hairs. Anal slit contiguous to the ventral vaginal opening, guarded posteriorly by 2 pairs of thick, barbed, long setae.

Type-species.—*Xenocaligonellidus ovaerialis* De Leon 1959, by original designation.

Terminology.—For descriptive purposes, idiosomal dorsal setae are separated into propodosomals and hysterosomals. There are 5 pairs of whip-like propodosomal setae, the posteriormost pair termed central propodosomal (*cp*). The hysterosomals include 1 pair of humerals (*h*), 2 pairs of laterals (L_1 , L_2), 2 pairs of sublaterals (S_1 , S_2) and 5 pairs of dorsocentrals (*dc*) (Fig. 1). The homology of L_1 to the acicular setae of the dorsocentral series and that of L_2 to the sublateral pairs suggest that these lateral setae, apart from their marginal position, share no functional characters in common.

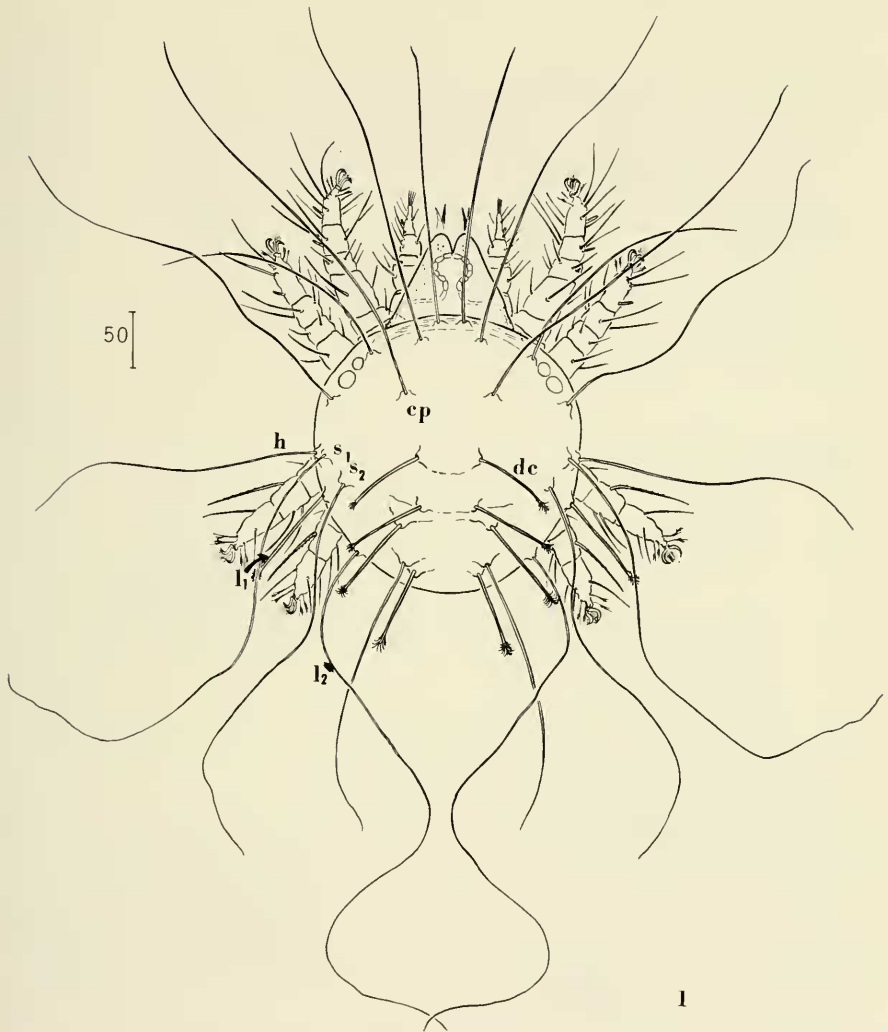
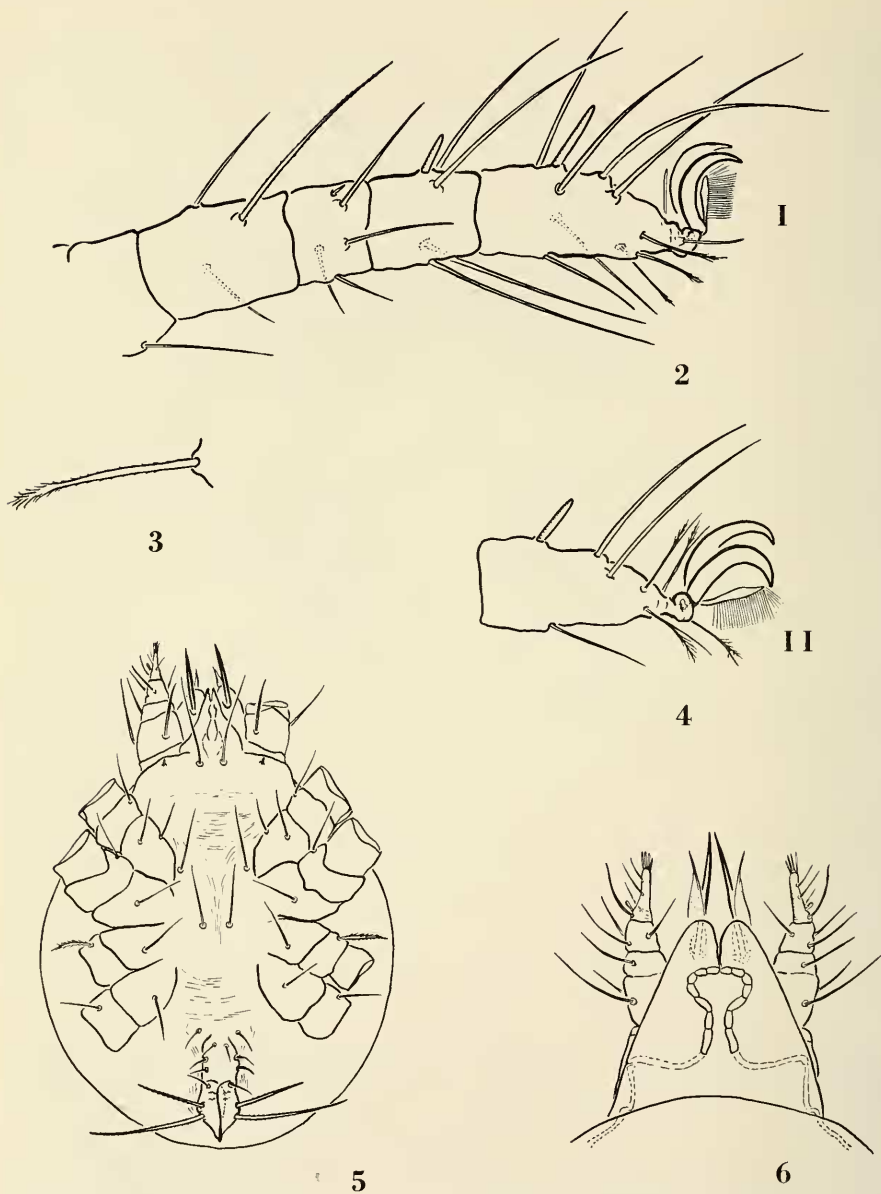


Fig. 1. *Xenocaligonellus galapagus*, dorsum of female. Setae: *cp* central prodorsals; *h* humerals; *s₁-s₂* sublaterals; *l₁-l₂* laterals; *dc* dorsocentrals.

All measurements are given in microns; length of dorsal whiplike setae are rounded to the nearest 5 microns.

Xenocaligonellidus galapagus González, new species

A species with circular, flattened, idiosoma and a combination of acicular and whiplike dorsal setae; posterolateral setae *L₂* the longest of dorsal series,



Figs. 2-6. Female. 2. Leg I; 3. Dorsal acicular seta; 4. Tarsus leg II; 5. Ventral aspect; 6. Stylophore with looped peritremes, and palpi.

nearly $2.4\times$ longer than diameter of body. Posteriormost 2 pairs of anal setae, acicular, stub.

Female.—Idiosoma 260 in diameter, leg I, 170; stylophore broadly triangular 132×95 , deeply notched at the front end. Stylets needle-like, fixed digits finely pointed. Peritremes of caligonellid type, extend to the distal $\frac{1}{3}$ of stylophore, loop made up of 14 cells (Fig. 6). Number of setae on palpal segments as follows: Femur 2; genu 1; tibia 3; tarsus 4, in addition to a proximal bulb-shaped sensory rod and 4 stubby terminal sensory setae. Dorsal aspect of idiosoma: 15 pairs of setae borne on strong tubercles. Five pairs of propodosomals, anteriormost pair 222, 2nd pair 360, preoculars 270, postoculars 395, central propodosomals (*cp*) 425. Ten pairs of hysterosomals of which 5 pairs are whiplike, L_2 being the longest of dorsal series, 660; all dorsocentrals but pair 4 and the lateral L_1 are acicular, distally spinose, ranging from 90–95 each (Fig. 3).

Number of setae and special sensoria (in parenthesis) on leg segments I through IV: Coxae 2-1-1-1; trochantera 1-1-1-1; femora 3-3-1-1; genua 3(1)-3-1-1, tibiae 4(1)-4-3-3, tarsi 11(1)-7(1)-7-7. Seta on trochanter III distinctly thickened and barbed (Fig. 5). Genu I carries a spinelike solenidion closely associated with dorsolateral seta; tibia and tarsus I provided with a well-developed corresponding solenidia 8 and 14 respectively (Fig. 2, leg I). Anterolateral setae on tibiae III/IV strongly barbed, 65 and 60 respectively (see Fig. 1). Tarsi II to IV provided with 4 branched terminal setae (Fig. 4, tarsus II).

Ventral side (Fig. 5).—No distinctive plates except for the anal covers. One pair of long, flagellate, subcapitular setae in the maxillicoxal area, mesal to a short, spinelike seta behind palpal bases. Coxal areas I–IV contiguous; 2 pairs of anteroventral setae and 1 pair of paragenitals close to genital group. Three pairs of subequal genital setae and 3 pairs of anals; the last 2 pairs of anals distinctly needle-like, barbed, and longer than anogenital slit measuring 50 and 88 respectively.

Holotype.—Collected on unknown plant, Wenman Island, Galápagos Arch., 31 January 1964 (D. Q. Cavagnaro). Deposited in Acarology Collection, Faculty of Agronomy, University of Chile, Santiago.

Remarks.—The two known species of *Xenocaligonellus* can be separated on the basis of the length of dorsal and ventral setae relative to the body size and in the quality of anal setae. *Xenocaligonellus galapagus* has longer whiplike setae, uniformly long acicular setae and two thick barbed posteriormost anal setae longer than the anogenital slit. *Xenocaligonellus ovaerialis* has one anal seta of this kind only. In addition, genu II of *galapagus* bears three setae instead of two and acicular seta (L_1) is marginal, not sublateral, in position.

Resumen

Una nueva familia de ácaros prostigmatos, *Xenocaligonellidae*, se ha creado para el género *Xenocaligonellus* De Leon 1959, el cual originalmente se ubicó en la familia *Caligonellidae*. Se describe una nueva especie, *X. galapagus* González, colectada en las islas Galápagos en las costas del Ecuador.

Literature Cited

- De Leon, D. 1959. A new genus of mites occurring in Florida and Mexico (Acari: Caligonellidae). Fla. Entomol. 42(1):17-19.
- Summers, F. M., and E. I. Schlinger. 1955. Mites of the family Caligonellidae (Acari). Hilgardia 23(1):539-561.

Plant Production and Protection Division, FAO, United Nations, Rome, Italy.